

STATEMENT OF THE LEGAL AND FACTUAL BASIS
FOR THE TERMS OF THE PROPOSED PERMIT
[MDAQMD Rule 1203(B)(1)(a)(i)]

TITLE V FEDERAL PERMIT TO OPERATE
Facility named – AFG INDUSTRIES, INC

Federal Operating Permit # 027000935

Issue Date: March 17, 2004

Processing Engineer:

William Weese
Air Quality Engineer

FACILITY IDENTIFYING INFORMATION:

Owner/Company Name: AFG INDUSTRIES, INC

Facility Names: AFG INDUSTRIES, INC

Facility Location: 17300 Silica Dr
Victorville, CA 92392

Mailing Address: AFG INDUSTRIES, INC
17300 Silica Dr
Victorville, CA 92392

MDAQMD Federal Operating Permit Number: 027000935

MDAQMD Company Number: 0270

MDAQMD Facility Number: 00935

Responsible Official: Don Frawley
Title: Plant Manager
AFG INDUSTRIES, INC

Phone Number: (760) 241-2237

Facility "Site" Contacts: Jerry Kinkade, Materials Manager
Patrick A. Carnie, Environmental Engineer
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Facility "Off Site" Contacts: Oluwole A. Anjonrin-Ohu,
Corporate Environmental Compliance Manager
1400 Lincoln Street, Kingsport, Tn. 37662
Phone Number: Direct Dial (423) 229-7487
Mobile (423) 914-2470

Nature of Business: Glass Manufacturing
SIC Code: 3211
Facility Location: UTM (Km) 473.69E / 3815.28N

**STATEMENT OF THE LEGAL AND FACTUAL BASIS FOR THE TERMS
OF THE PROPOSED PERMIT [1203(B)(1)(a)(i)]**

Statutory and Regulatory Authorities: Pursuant MDAQMD Regulation 12, Program - Federal Operating Permits, a.k.a. Title V (Adopted 7/25/94, Amended 02/22/95, Additional Rules adopted 06/28/95, 7/31/95) and 02/05/96 FR 4217, in accordance with Rule 221 - *Federal Operating Permit Requirement*, 40 CFR 52.220(c)(216)(i)(A)(2) - 02/05/96 61 FR 4217 of the Clean Air Act of 1990, the Mojave Desert Air Quality Management District issues this permit.

Federal Operating Permit (FOP number: 027000935) for AFG INDUSTRIES, INC, 17300 Silica Dr Victorville, CA 92392. AFG INDUSTRIES, INC, is a Flat (float) Glass Manufacturing Facility, SIC Code: 3211

The AFG INDUSTRIES, INC Title V Federal Operating Permit was developed by consulting District Permit conditions for existing equipment, SIP Rules and NSPS requirements for Federal Rules, applicable to the facility. MDAQMD Title V Program Rules were also consulted.

I. FACILITY DESCRIPTION:

AFG is a flat (float) glass manufacturing facility. A mix batch containing sand and additives is charged to a natural gas fired glass-melting furnace where it is melted, refined & temperature conditioned along the way. Controlled quantities of molten glass are discharged onto the molten tin bath, with a controlled atmosphere of N₂ and H₂ where the glass is molded to any desired thickness & further temperature conditioned. The glass ribbon is lifted out of the tin bath by a set of driven rolls, which transports the glass ribbon through the annealing lehr, and then it is systematically heated electrically, cooled by a system of atmospheric air conducting tube heat exchangers and direct atmospheric air. The annealing lehr is after the float bath where the glass is slowly cooled to handling temperature. The lehr leads to the cold end driven rolls where the glass is inspected, cut and packed into shipping containers.

The glass-melting furnace is fitted with an electrostatic precipitator control device, SO₂ scrubber control device and a thermal DeNO_x control device.

The glass-melting furnace is fitted with a Continuous Emissions Monitoring System (CEMS) as follows:

- A. To measure stack gas concentrations of oxygen, oxides of nitrogen and sulfur dioxide, specifications shall comply with USEPA specifications in 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 2;
- B. The mass emissions rates of sulfur dioxide and oxides of nitrogen shall be computed using USEPA, 40 CFR 60, Appendix A, method 19. The rates shall be computed based on the concentrations measured above, the fuel flow rate and the gross calorific value of the fuel. The averaging time shall not exceed 20 minutes.
- C. CEMS' Certification Test shall be conducted annually and Gas Cylinder audits shall be conducted in each of the remaining three quarters.

[40 CFR 70.6 (a)(3)(B) - Periodic Monitoring Requirements]

[Rule 204 - Permit Conditions; Version in SIP = CARB Ex. Order G-73, 40 CFR

52.220(c)(39)(ii)(B) - 11/09/78 43 FR 52237; Current Rule Version = 07/25/77]

[Rule 1157 - Boilers and Process Heaters; Version in SIP = Current, 40 CFR

52.220(c)(207)(I)(D)(3) - 5/19/97 61 FR 56470, effective 11/1/96]

II. BACKGROUND:

The Federal Clean Air Act Amendments of 1990 established a nation-wide permit to operate program commonly known as "Title V". MDAQMD adopted Regulation XII [Rules 1200 - 1210] and Rule 221 - *Federal Operating Permit Requirement*; [Version in SIP = Current, 40 CFR 52.220(c)(216)(i)(A)(2) - 02/05/96 61 FR 4217], to implement the Federal Operating Permit, and received Interim Program Approval from EPA on March 6, 1996.

This *Statement of Legal and Factual Basis*, pursuant to Rule 1203(B)(1)(a)(i), is intended to assess the adequacy of this Title V Application and to explain the District's basis in composing the Title V - Federal Operating Permit. The Title V Federal Operating Permit application received before March 6, 1997 met the Part 70 application deadline for MDAQMD facilities. [NOTE: all MDAQMD facilities subject to Title V were required to submit Title V applications by March 6, 1997].

The facilities Title V Permit Application was reviewed and subsequently determined complete.

The District's approach to the Title V program is to issue a single Federal Operating Permit for the entire facility that satisfies the federal requirement for a permit under Rule 221 [NOTE: *MDAQMD maintains separate Title V and District permits programs*]. All Federal, State and most District only requirements, associated with the emission of air contaminants, are included in the Federal Operating Permit. All documents, which are not readily available to the public, and are necessary to support the permit, are to be included. The District has taken the approach that the following documents are readily available to the public, and therefore, are not included: *Code of Federal Regulations, California Code of Regulations and Health and Safety Code, District Rules and Regulations [both documents are current and appear in the California State Implementation Plan], the continuous emission monitoring system quality assurance and monitoring plans [available at the facility or the District's office], all test methods, copies of District Authorities to Construct and Permits to Operate [available at the District's office]*.

The USEPA, Region 9 was e-mailed a draft of the proposed permit on January 9, 2004 [a hard copy was mailed January 9, 2004]. The USEPA statutory 45-day review period will expire on or about March 11, 2004. The 30-day Public Notice will be published on January 27, 2004 and end on February 25, 2004.

The District will review and consider all public and EPA comments and modify this "Statement of Basis" document and Title 5 Permit to address agreed to concerns before the proposed Title V Permit is issued.

Rule 1203 (D)(1) outlines Title V Permit content requirements as follows:

III. TITLE V PERMIT CONTENTS [Rule 1203 (D)(1)]:

All Federal Operating Permits shall contain, at a minimum, the following terms, and conditions:

A. Identification of Applicable Requirements:

1. Standard conditions for generally applicable requirements do not list those processes to which they apply as allowed by EPA's White Paper One, page 11, section 4, last sentence of paragraph 2.

2. Minor New Source Review (NSR). All existing permit conditions, which are based on previous authority to construct conditions, are considered applicable federal requirements because those pre-construction review actions resulted from SIP Rule 203 - *Permit to Operate* and SIP Rule 204 - *Permit Conditions*.

3. Federal Applicable/Enforceable Requirements:

District Rule 1201 (P): "Federally Enforceable" - Any requirement, condition or other term which is fully enforceable by USEPA pursuant to the provisions of 42 U.S.C. §7413 (Federal Clean Air Act §113) or the public pursuant to the provisions of 42 U.S.C. §7604 (Federal Clean Air Act §304).

District Rule 1201 (G): "Applicable Requirement" - Any of the following requirements, including requirements that have been promulgated or approved by USEPA through rulemaking at the time of permit issuance but have future effective dates, as they apply to a Facility or Permit Unit:

- (a) Any standard or other requirement contained in the applicable implementation plan for the District, and any amendments thereto, approved or promulgated pursuant to the provisions of Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515).
- (b) Any term or condition of any preconstruction permit issued pursuant to regulations approved or promulgated under Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515).
- (c) Any standard or other requirement under 42 U.S.C. §§7411, Standards of Performance for New Stationary Sources (Federal Clean Air Act §111); 42 U.S.C. §7412, Hazardous Air Pollutants (Federal Clean Air Act §112); and any regulations promulgated thereunder.
- (d) Any standard or other requirement under Title IV of the Federal Clean Air Act (42 U.S.C. §§7651-7651o) or the regulations promulgated thereunder.
- (e) Any requirements regarding monitoring, analysis, and compliance established pursuant to 42 U.S.C. §7414(a)(3), Record keeping, Inspections, Monitoring and Entry (Federal Clean Air Act §114); 42 U.S.C. §7661c(b), Permit Requirements

and Conditions (Federal Clean Air Act §504); and the regulations promulgated thereunder.

- (f) Any standard or other requirement governing Solid Waste Incineration Units under 42 U.S.C. §7429, Solid Waste Combustion (Federal Clean Air Act §129) and the regulations promulgated thereunder.
- (g) Any standard or other requirement for consumer or commercial products under 42 U.S.C. §7511b(e) (Federal Clean Air Act §183) and the regulations promulgated thereunder.
- (h) Any standard or other requirement of the regulations promulgated under Title VI of the Federal Clean Air Act (42 U.S.C. §§7671-7671q) unless the USEPA has determined that such requirement need not be contained in a Federal Operating Permit.
- (i) Any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Federal Clean Air Act (42 U.S.C. §§7401-7515), but only as it would apply to temporary sources pursuant to the provisions of 42 U.S.C. 7661c(e) (Federal Clean Air Act §504(e)).

4. See the following discussions below:

40 CFR Part 61, Subpart M - National Emission Standard for Asbestos

This facility on an as needed basis is subject to Section 61.145 through 61.147 - standards for the demolition and renovation of asbestos. Historically, the facility has been in compliance with the requirements of these standards. **Appropriate conditions are included on the permit to ensure compliance with these requirements.**

40 CFR Part 82 - Protection of Stratospheric Ozone

This facility is in compliance with the requirements of this part. Any servicing of air conditioners is performed by a qualified contracting company. **An appropriate condition is included on the permit to ensure continued compliance with these requirements.**

40 CFR, Parts 60.7, 60.8 and 60.13; Subpart A - New Source Performance Standards, General Provisions

Facility equipment is not subject to the requirements of this part because the facility started construction/reconstruction before any respective applicability dates.

- C. Emissions limitations and/or standards, including operational limitations, which assure compliance with all Applicable Requirements and a reference to the origin and authority of each term or condition contained in the Federal Operating Permit: **Completed,**

Processes and Control Equipment Requiring Emission and Operational Limitations are stated in the Title V Permit conditions.

- D. Monitoring requirements including but not limited to: [40 CFR 70.6(a)(1)] [see following] **Completed, Processes and Control Equipment Requiring Monitoring and Recordkeeping are stated in permit conditions. Records for 5 years stated in Title V Permit conditions.**
- (i) All emissions monitoring and analysis methods required by an Applicable Requirement.
 - (ii) Periodic monitoring, testing or record keeping (including test methods sufficient to yield reliable data) to determine compliance with an Applicable Requirement that does not directly require such monitoring.
 - (iii) Necessary requirements concerning use and maintenance of equipment including the installation and maintenance of monitoring equipment.

Other - Facility Support Equipment

Any underground gasoline tanks are given a PTO pursuant to District Rule 461. No NSPS, NESHAPS or MACT apply to this or other equipment at this facility because no MACT has been proposed and the total toxic emissions are less than the applicability threshold of 10 tons per year. **Completed, no underground gasoline tanks at this facility.**

- E. Record keeping requirements, where applicable, including but not limited to: [see following] **Completed, Processes and Control Equipment Requiring Monitoring and Recordkeeping are stated in permit conditions. Records for 5 years stated in Title V Permit conditions.**
- (i) Records of required monitoring information including dates and times of sampling, operating conditions at the time of sampling, date of analysis, analytical techniques and methods, the person or company performing the analysis, and the results of the analysis.
 - (ii) The retention of all records for a period of at least five (5) years from the date of monitoring.
- F. Reporting requirements, where applicable, including but not limited to: [see following] **COMPLETED, requirement in proposed Title V Permit.**
- (i) Submittal of any required monitoring reports at least every six (6) months.
 - (ii) Prompt reporting of all deviations from permit requirements including those attributable to breakdown conditions. Prompt reporting shall be determined in compliance with District Rule 430.
- G. Various Standardized Provisions and/or Conditions: [see following] **COMPLETED, requirement in proposed Title V Permit.**
- (i) A severability clause.

- (ii) A provision, which states that the permit holder shall comply with all conditions of the Federal Operating Permit. Any noncompliance constitutes a violation of the Federal Clean Air Act and is grounds for enforcement action; the termination, revocation and reissuance, or modification of the Federal Operating Permit; and/or grounds for denial of a renewal application.
- (iii) A provision which states that the need to halt or reduce activity to maintain compliance with the provisions of the Federal Operating Permit, or for any other reason, is not a defense in an enforcement action.
- (iv) A provisions, which states that the Federal Operating Permit may be modified, revoked, reopened, reissued or terminated for cause.
- (v) A provision which states that the filing of an application for modification; a request for revocation and re-issuance, or termination; or notifications of planned changes, or anticipated noncompliance does not stay any condition of the Federal Operating Permit.
- (vi) A provision, which states that the permit does not convey any property rights of any sort, or any exclusive privilege.
- (vii) A provision which states that the Permit holder shall furnish to the District, within a reasonable time as specified by the District, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, terminating or determining compliance with the Federal Operating Permit.
- (viii) A provision which states that the Permit holder shall, upon request, furnish to the District copies of records required to be kept pursuant to conditions of the Federal Operating Permit.
- (ix) A provision requiring the payment of annual permit renewal fees and other applicable fees as prescribed in District Rule 312.
- (x) A provision stating that no permit revision shall be required under any approved economic incentives, marketable permits, emissions trading or other similar programs provided for in the permit.
- (xi) Terms and conditions, if applicable, for reasonably anticipated operating scenarios identified by the Facility in its application which require the Facility, contemporaneously with making the change from one operating scenario to another, to record in a log at the Facility a record of the scenario under which it is operating; and ensure that each alternative operating scenario meets all Applicable Requirements.
- (xii) Terms and conditions, if requested by the applicant, for the trading of emissions increases and decreases within the Facility to the extent any Applicable Requirements allow for such trading without case-by-case approval. Such terms conditions shall include all terms and conditions to determine compliance with all Applicable Requirements; and meet all Applicable Requirements.

H. Compliance Conditions: [see following] **COMPLETED, requirement in proposed Title V Permit.**

- (i) Inspection and entry requirements which require that the Permit Holder allow an authorized representative of the District to enter upon the Permit holder's premises, at reasonable times.
- (ii) Provisions which allow an authorized representative of the District to have access to and copy any records that must be kept under conditions of the Federal Operating Permit.
- (iii) Provisions, which allow an authorized representative of the District to inspect any Permit Unit, equipment, practice, or operation regulated or required under the Federal Operating Permit.
- (iv) Provisions which allow an authorized representative of the District to sample or monitor substances or parameters for the purpose of assuring compliance with the Federal Operating Permits or with any Applicable Requirement.
- (v) A Compliance Plan.
- (vi) A restatement, if applicable, of the requirement that the Permit holder submit progress reports at least semiannually pursuant to a schedule of compliance. Such progress reports shall comply with the provisions of District Rule 1201(I)(3)(iii).
- (vii) Certification requirements including the frequency of submission, not less than annually, for Compliance Certifications.
- (viii) Requirements that method for monitoring compliance be included in the Compliance Certifications.
- (ix) Requirements that all Compliance Certifications be contemporaneously submitted to USEPA.
- (x) Any additional certification requirements as specified in 42 U.S.C §7414(a)(3), Recordkeeping Inspections Monitoring and Entry (Federal Clean Air Act §114(a)(3)) and 42 U.S.C. §7661c(b), Permit Requirements and Conditions (Federal Clean Air Act §503(b)) or in regulations promulgated thereunder.

I. Fugitive Emissions: **COMPLETED, control equipment and requirements are addressed in proposed Title V Permit.**

- (i) Fugitive emissions shall be included in the permit and permit conditions in the same manner as stack emissions.

IV. CONCLUSIONS AND RECOMMENDATION:

In conclusion, the proposed Facility Title V Permit has been found to satisfy all of the requirements of District Rule 221, Rule 312, Regulation XII Rules, and the District's Title V Permit Program requirements.

Therefore, it is recommended that this Title V - Federal Operating Permit be issued to satisfy these requirements on or after March 11, 2004.

APPENDIX “A”

DISTRICT / SIP RULE COMPLIANCE DEMONSTRATIONS:

- A. Rule 406: Owner/Operator shall not discharge into the atmosphere from this facility, from any single source of emissions whatsoever, Sulfur compounds, which would exist as a liquid or gas at standard conditions, calculated as sulfur dioxide (SO₂) greater than or equal to 500 ppm by volume.

[40 CFR 70.6 (a)(1) - Periodic Monitoring Requirements] (for Periodic Monitoring Requirements, see: Part II, section A, condition 22; Part III, section C, conditions 11 and 22; Part V, section C, condition 4; Part V, section D, condition 3; Part V, section I, condition 3)

[Rule 406 - Specific Contaminants; Version in SIP = 07/25/77, 40 CFR 52.220(c)(42)(xiii)(A) - 12/21/78 43 FR 52489, Subpart (a) only; Current Rule Version = 02/20/79]

Rule 406 specifies standard conditions, but not dry. Standard conditions for Rule 406 will be calculated as wet.

Calculate the SO₂ concentration in the diesel fueled IC engine exhaust gas using the following assumptions/calculations:

1. Maximum sulfur content of the diesel fuel is by permit condition: 0.05 % by weight.
2. Specific gravity of diesel fuel is 0.84: weight of one gallon of diesel fuel is: 8.33 lb/gal x 0.84 = 7 lb/gal.
3. Heating value of diesel fuel from U.S. EPA AP-42, Section 3.3: 19,300 Btu/lb.
4. Gallons of fuel required for 10⁶ Btu: 1 lb/19,300 Btu = x lb/ 10⁶ Btu: x = 51.8 lb: (51.8 lb)(1 gal/7 lb) = 7.4 gallons per 10⁶ Btu.
5. Pounds of sulfur per 10⁶ Btu (7.4 gallons): (7.4 gal)(7 lb/gal)(0.0005) = 0.0259 pounds.
6. Mols of sulfur per 10⁶ Btu: 0.0259 lb/ 32 lb/mol = 8.09 x 10⁻⁴ mols.
7. Volume of SO₂ produced; assuming that one mol of sulfur produces one mol of SO₂; 8.09 x 10⁻⁴ mols of SO₂ are produced per 10⁶ Btu of diesel burned: (385 ft³ / mol)(8.09 x 10⁻⁴ mols) = 0.312 ft³: (385 ft³/mol is at 68 degrees Fahrenheit).
8. From 40 CFR 60, Appendix A, Method 19 the F_w factor for diesel is 10,320 wscf / 10⁶ Btu (68 degrees Fahrenheit, 0 % excess O₂). Rule 406 specifies the SO₂ concentration at standard conditions, wet, not dry.

For purposes of this calculation, excess air from the combustion process will not be considered in calculating the SO₂ concentration & is the most conservative assumption:

Concentration of SO₂ at zero percent oxygen:

$$0.312 \text{ ft}^3 / (0.010320 \times 10^6 \text{ wscf}) = 30.2 \text{ ppmv}$$

Conclusion: Diesel fueled IC Engine exhaust SO₂ concentration of 30.2 ppmv complies with Rule 406 SO₂ limit of 500 ppmv.

It is assumed that the SO₂ concentration in natural gas fueled IC engine exhaust gas will be conservatively less than that demonstrated above for diesel combustion:

Calculate the CO concentration in boiler exhaust gas using the following assumptions/calculations:

1. Based on U.S. EPA AP-42; Section 1.4, Table 1.4-2, lists the CO emission factor for natural gas combustion in boilers to be 35 lb CO per 10^6 ft³ of natural gas burned. Assume 1000 Btu / ft³ of natural gas.
2. From 40 CFR 60 Appendix A, Method 19, the F_d factor for natural gas is 8710 dscf / 10^6 Btu (68 degrees Fahrenheit). Rule 407 specifies the CO concentration on a dry basis.
3. For the purposes of this calculation, excess air will not be considered in calculating the CO concentration (most conservative):

Cubic feet of CO produced per 10^6 ft³ of natural gas burned:
(35 lb) (1 lb mol / 28 lb) (385 ft³ / mol) = 481 ft³ CO (385 ft³ / mol at 68 degrees Fahrenheit)

Dry cubic feet of combustion gas formed from 10^6 ft³ of natural gas burned:
(10^6 ft³ gas) (1000 Btu / ft³) (8710 dscf / 10^6 Btu) = 8,710,000 dscf

CO concentration = $481 \text{ ft}^3 / 8.71 \times 10^6 \text{ ft}^3 = 55.2 \text{ ppm}$ (most conservative)

Conclusion: Boiler exhaust CO concentration of 55.2 ppmv complies with Rule 407 CO limit of 2000 ppmv.

- B. Rule 409: Owner/Operator shall not discharge into the atmosphere from this facility from the burning of fuel, combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12 percent of carbon dioxide (CO₂) at standard conditions averaged over a minimum of 25 consecutive minutes.
[Rule 409 - *Combustion Contaminants*; Version in SIP = CARB Ex. Order G-73, 40 CFR 52.220(c)(39)(ii)(C) - 09/08/78 43 FR 40011; Current Rule Version = 07/25/77]

Calculate the Total Particulate Concentration in the diesel fueled IC engine exhaust gas using the following assumptions/calculations:

1. Based on U.S. EPA AP-42, Section 3.4, Table 3.4-5, the emission factor for total particulate is 0.0697 lb/ 10^6 Btu. (= 487.9 grains/ 10^6 Btu)
2. From 40 CFR 60, Appendix A, Method 19 the F_w factor for diesel is 10,320 wscf/ 10^6 Btu (68 degrees Fahrenheit, 0 % excess O₂). Rule 409 specifies the Particulate concentration at standard conditions, wet, not dry.

For purposes of this calculation, excess air from the combustion process will not be considered in calculating the Particulate concentration & is the most conservative assumption:

Concentration of Particulate at zero percent oxygen:

$$(487.9 \text{ grains}/10^6 \text{ Btu}) / (10,320 \text{ wscf}/10^6 \text{ Btu}) = 0.047 \text{ grain}/\text{ft}^3$$

Conclusion: Diesel fueled IC Engine exhaust Total Particulate concentration of 0.047 grain per cubic foot complies with Rule 409 limit of 0.1 grain per cubic foot.

It is assumed that the Total Particulate concentration in natural gas fueled IC engine exhaust gas will be conservatively less than that demonstrated above for diesel combustion: